

Recovery Plan Action Status

Plan Name: Recovery Plan for *Fritillaria gentneri* (Gentner's Fritillary)

Plan Status: Final

Plan Date: 28-Aug-03

Lead Agency: USFWS

Lead Office: Oregon Fish And Wildlife Office

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231-6179)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Gentner's Fritillary (<i>Fritillaria gentneri</i>)	2	1.1	Develop identification guide	Complete	FY 2000 - FY 2004	FY 2009	U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Other: Information and Education	Internal Technical Assistance	Oregon and California: From 2003 to 2009 Medford BLM had been providing contractors and landowners with photos and information about the species. Final pamphlet guide for widespread distribution was printed by BLM in 2010. A formal brochure with an identification guide was developed on July 1, 2009. Medford BLM took lead on this action and has completed the guide. The guide is available at ftp://ftp.blm.gov/blm/incoming/OR/ .
Gentner's Fritillary (<i>Fritillaria gentneri</i>)	1	1.2	Provide technical assistance	Ongoing Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program	Other	Internal Technical Assistance, Species Expert	Most expenditures for this action are through staff time. This action is not expected to be complete until fritillary is delisted. Service staff assisted NRCS with Gentner's fritillary surveys for some of the 2011 technical assistance.

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Gentner's Fritillary (Fritillaria gentneri)	1	2.1	Select Fritillaria management areas	Ongoing Current	FY 2008		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Management, Research: Population Assessment	Internal Field Assistance, Internal Technical Assistance, Species Expert	A draft conservation agreement between USFWS, BLM, ODOT, CDGF, and FS to establish Fritillaria management areas is in review. Expected completion in FY 2012.
Gentner's Fritillary (Fritillaria gentneri)	2	2.2	Delineate boundaries	Ongoing Current	FY 2008		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Management: Other	Contract, Internal Technical Assistance, Species Expert	This action will involve GIS mapping and landowner outreach. It is expected to be complete with the finalization of the Gentner's fritillary conservation agreement.
Gentner's Fritillary (Fritillaria gentneri)	1	2.3	Secure habitat	Ongoing Current	FY 2006		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Acquisition: Easement, Acquisition: General, Acquisition: Lease, Acquisition: Management Agreement	Internal Administrative	Oregon: The FWS and ODA were able to secure 9 acres of habitat in 2005. Approximately 350 acres of suitable fritillary habitat near Sam's Valley and the Table Rocks area in Jackson County, Oregon came under TNC ownership in FY 2009. This will likely be an ongoing action as land protection opportunities arise.

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Gentner's Fritillary (Fritillaria gentneri)	2	2.41	Conduct baseline demographic monitoring and map populations with GPS	Complete	FY 2000 - FY 2004	FY 2009	U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Demographic Studies	Internal Technical Assistance	Oregon: BLM performs surveys across most of the plant's range annually. Most of range has been mapped. The California populations are now well-mapped. New populations will be mapped as they are discovered. By 2009 most populations have been well mapped with GPS.
Gentner's Fritillary (Fritillaria gentneri)	2	2.42	Assess population augmentation needs	Ongoing Current	FY 2005		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Habitat Requirements, Research: Population Surveys	Contract, Internal Field Assistance, Volunteer	Although no formal project has been initiated, assessment of augmentation needs is continuously in evaluation by BLM and ODA. ODA has been assessing augmentation needs for several years. Each year new habitat information specific to each site becomes available during monitoring.

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Gentner's Fritillary (Fritillaria gentneri)	2	2.431	Collect ricegrain bulblets	Ongoing Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Demographic Studies, Research: Management Techniques	Contract, Internal Field Assistance	Oregon and California: collection of bulblets for propagation was initiated in 2002. It has been a continuing function of future augmentation efforts. In FY 2007 collection expanded to new areas. In FY 2008 bulblet collection will continue into California with help of YFWO and CDFG. FY 2009 collection is continuing and is funded. This project was not funded in FY 2010.
Gentner's Fritillary (Fritillaria gentneri)	2	2.432	Cultivate bulblets into larger plants and outplant	Ongoing Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service, Oregon Parks and Recreation Department	Research: Management Techniques, Research: Propagation	Contract, Graduate Student, Internal Field Assistance	Oregon: This effort began in 2003 and has continued until present. This action will be a continuing function for augmentation efforts. This work will be ongoing until sufficient numbers of flowering plants are established in management areas to delist species. An effort was lead by Medford BLM and accomplished with the assistance of ODA and volunteers. FY 2009 cultivation is continuing.

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Gentner's Fritillary (Fritillaria gentneri)	2	2.44	Conduct at least biennial monitoring	Ongoing Current	FY 1995 - FY 1999		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Other	Contract, Internal Field Assistance	An ongoing recovery action led by Medford BLM, CDGF, and the ODOT. Medford BLM contracts out annual plant monitoring with two private consultants and the Institute of Applied Ecology. FWS in Yreka and CDGF contract out ODA.
Gentner's Fritillary (Fritillaria gentneri)	2	2.51	Develop habitat management plans	Ongoing Current	FY 2005		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Management: Habitat Maintenance and Manipulation, Management: Land Use, Management: Planning	Contract	Management plans addressing Gentner's fritillary will be developed for larger fritillary populations on other publicly owned lands. During a Gentner's fritillary recovery workshop conducted in 2010, it was determined by participants that adaptive habitat management was one of the most important recovery actions. The Cascade-Siskiyou National Monument plan, administered by Medford BLM does focus on fritillary management.
Gentner's Fritillary (Fritillaria gentneri)	2	2.52	Implement habitat management plans	Ongoing Current	FY 2008		U.S. Bureau of Land Management, City of Jacksonville and Jacksonville Woodlands Association, Forest Service	Management: Depredation Control, Management: General, Management: Habitat Maintenance and Manipulation, Management: Planning, Management: Propagation, Management: Reintroduction	Internal Field Assistance, Internal Technical Assistance, Species Expert	For the 2008 Cascade-Siskiyou National Monument management plan, Gentner's fritillary grazing research, population augmenting, and monitoring is being conducted. This information can be applied to future management planning efforts.

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Gentner's Fritillary (Fritillaria gentneri)	2	3.1	Survey for undiscovered populations	Ongoing Current	FY 1995 - FY 1999		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Population Surveys	Internal Field Assistance	Oregon: BLM funds annual internal fritillary surveys across the plant's range and often new subpopulations are discovered. FWS has funded Fritillaria gentneri surveys in the past and participated in population censuses.
Gentner's Fritillary (Fritillaria gentneri)	2	3.2	Research habitat requirements	Not Started			U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Habitat Requirements	Contract, Graduate Student, Internal Technical Assistance	Although no formal project has been initiated, habitat assessment is an ongoing occurrence. ODA and the Institute for Applied Ecology have been assessing habitat needs for several years. Each year new habitat information specific to each site becomes available during monitoring.
Gentner's Fritillary (Fritillaria gentneri)	3	3.3	Develop methods to distinguish nonflowering plants	Discontinued	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Genetics, Research: Taxonomic Studies	Internal Field Assistance	This exercise may not be feasible due to wide range in leaf and genetic variation. With the aid of molecular markers non-flowering plants can be distinguished, however this method is costly, time-consuming, and not effective in the field. This action is currently not considered a high priority action.

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Gentner's Fritillary (Fritillaria gentneri)	2	3.4	Research response to habitat management treatments	Ongoing Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Genetics	Contract, Graduate Student	Oregon: The Medford BLM and the City of Jacksonville continue to evaluate responses to habitat management treatments and effectiveness of weed control. ODA and BLM are leading this effort. ODOT is interested in testing some vegetation management as well. This item was considered very important by the participants of the 2010 Fritillaria gentneri recovery workshop.
Gentner's Fritillary (Fritillaria gentneri)	2	3.5	Research the extent and distribution of genetic diversity	Complete	FY 2000 - FY 2004	FY 2008	U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Genetics	Contract, Graduate Student	Medford BLM and Southern Oregon University funded a genetic research project that was completed in 2004, but the techniques were not current to modern standards. In FY2006 and 2007, students at OSU conducted research on fritillary hybridization and genetic diversity throughout its range. So far research determined the plant is of hybrid origin but is able to cross with other plants successfully if they are from other populations.

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Gentner's Fritillary (Fritillaria gentneri)	2	3.6	Research off-site cultivation from bulblets	Complete	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Propagation	Contract, Graduate Student	ODA has intensively researched cultivation methods. New discoveries in Fritillary propagation will continue. ODA has determined very good methods to cultivate bulblets and now set the standard for Fritillaria gentneri cultivation and propagation.
Gentner's Fritillary (Fritillaria gentneri)	3	3.7	Research potential for sexual reproduction	Complete	FY 2000 - FY 2004	FY 2007	U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Genetics, Research: Propagation	Contract, Graduate Student	Funded by FWS grants, ODA has completed this action. Fritillaria is fertile and produces fertile seed when crossed with plants from a different population.
Gentner's Fritillary (Fritillaria gentneri)	3	3.8	Determine if hybrid	Complete	FY 2000 - FY 2004	FY 2007	U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research: Genetics, Research: Propagation	Contract, Graduate Student	The FWS and Medford BLM funded different aspects of this project. The ODA submitted a final report in FY2007. ODA has determined that Fritillaria gentneri resulted from hybrid origin, but is capable of sexual reproduction. The plant also appears to be genetically self-incompatible meaning it crosses outside of populations only, not within populations of identical plants.

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Gentner's Fritillary (Fritillaria gentneri)	3	3.9	Determine feasibility of bulb salvage	Complete	FY 2000 - FY 2004	FY 2008	U.S. Bureau of Land Management, Oregon Department of Agriculture - Plant Conservation Program	Research: Propagation	Graduate Student, Internal Field Assistance	ODA has refined fritillary bulb salvage to the point that they have provided a protocol to collect, store, and re-plant bulbs. Testing is ongoing, but ODA has gathered sufficient data to answer most questions about bulb salvaging.
Gentner's Fritillary (Fritillaria gentneri)	3	4.1	Develop offsite storage methods	Ongoing Not Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Research, Research: Propagation, Research: Reintroduction	Contract, Graduate Student, Internal Technical Assistance	Offsite storage of bulblets is undergoing testing and may require at least ten years to determine success. This action was not recently funded.
Gentner's Fritillary (Fritillaria gentneri)	3	4.2	Establish offsite germplasm banks	Ongoing Not Current	FY 2000 - FY 2004		U.S. Bureau of Land Management, Oregon Department of Agriculture - Plant Conservation Program	Research: Propagation	Contract, Graduate Student	Germplasm banks have been established at Oregon State University and Berry Botanic Garden. No new germplasm banks have been established but will be necessary before broad-scale fritillary introduction can begin.

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Gentner's Fritillary (Fritillaria gentneri)	3	5.0	Review and revise plan	Ongoing Current	FY 2014		U.S. Bureau of Land Management, U.S. Fish and Wildlife Service, City of Jacksonville and Jacksonville Woodlands Association, Oregon Department of Agriculture - Plant Conservation Program, Forest Service	Other	Contract, Species Expert	In 2010 a Fritillaria gentneri recovery working group met and discussed the recovery plan. Participants voted on the most important recovery items to take action on. Implementation and study of management treatments was considered one of the top recovery actions. A five-year review will be initiated in FY 2012.